

For HVAC, Irrigation, OEM, Commercial and Institutional Applications

Job Name _____ Contractor _____
 Job Location _____ Approval _____
 Engineer _____ Contractor P.O. No. _____
 Approval _____ Representative _____

Butterfly Valves

Series BF-03-M2 Full Lug and BF-04-M2 Wafer

Sizes: 2" – 12" (50 – 300mm) 200psi (13.8 bars)
 14" – 24" (350 – 600mm) 150psi (10.3 bars)

Watts Series BF resilient seated butterfly valve is available in sizes 2" – 24" (50 – 600mm), wafer or lug body design. This series was designed to meet the stringent requirements for HVAC, Irrigation, OEM, Commercial and Institutional applications, and wherever positive shut-off is required for liquids, gases and slurries.

Incorporating a 200psi (13.8 bars) pressure rating for 2" – 12" (50 – 300mm) and a 150psi (10.3 bars) pressure rating 14" – 24" (350 – 600mm), the Series BF is standardly constructed of a cast iron body, ductile iron, aluminum bronze or 316SS disc and 416SS shaft. A phenolic-backed seat prevents the seat from collapsing or dislodging and can be replaced in the field. Standard seat materials available include Buna-N and EPDM. In addition to the above features, the Series BF mounting pad design can easily accommodate a lever handle, gear operator, and electric or pneumatic actuators.

The Watts Series BF butterfly valves are designed and manufactured for use with ANSI 125 or 150 Class flanges and to comply with API 609 and MSS-SP-67.

Features

- **HANDLE** - Ten-position handle is standard. An infinite positioning/locking handle is available as an option on valve sizes 2" – 12" (50 – 300mm). The infinite position Pos-Lok throttle plate incorporates an infinite-position stop, a memory stop and a padlocking device in the fully closed position. Manual, worm-gear operators are available for all valves and are recommended on 8" – 24" (200 – 600mm) sizes. Watts butterfly valves are also available with electric or pneumatic actuators and chain wheel operators to satisfy a wide variety of requirements.
- **SHAFT** - One-piece shaft delivers positive disc-to-seat location with maximum strength. 416SS is standard with aluminum bronze and ductile iron discs, and 316SS shaft with 316 stainless steel disc.
- **SHAFT BUSHINGS** - Duralon® bushings (3) provide shaft support for proper shaft alignment and minimize shaft deflection.
- **SHAFT SEAL** - Bidirectional shaft seal prevents external contamination of stem area and provides backup for the primary shaft seal formed by the disc/seat interface.
- **BODY** - Watts Butterfly Valves are available in Full Lug (BF-03-M2) and Wafer (BF-04-M2) type designed for use between ANSI 125 and 150 flanges. Face-to-face dimensions comply with API 609 and MSS-SP-67. All valves are designed to accommodate 2" of insulation. The standard material is ASTM A126 Class B cast iron.
- **DISC** - Disc edge is machined and polished 360° to assure leak-tight shutoff while minimizing operating torque. Positive, disc-to-shaft connection is provided by stainless steel precision taper pins that are vibration proof.
- **SEAT** - Phenolic backed, non-collapsible, resilient seat is mechanically secured to provide dead-end service to the full 200psi (13.8 bars) pressure rating. Seat face eliminates the need for flange gaskets. Full 360° sealing isolates the body components from the media and provides the primary shaft seal. Available in EPDM and Buna-N. Seat is field replaceable.



Actuators

The integrally cast, heavy duty four bolt mounting pad, coupled with lower operating torque requirements, provides easy and cost effective automation with a variety of pneumatic and electric actuators.

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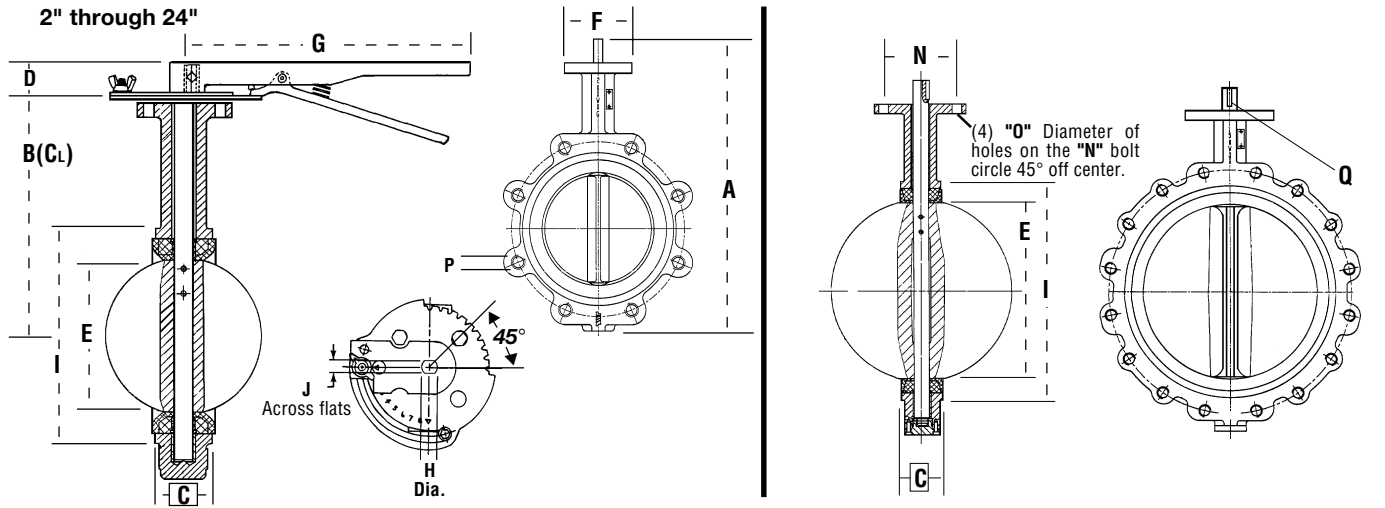
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REGULATOR

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ISO 9001
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Dimensions – Weights



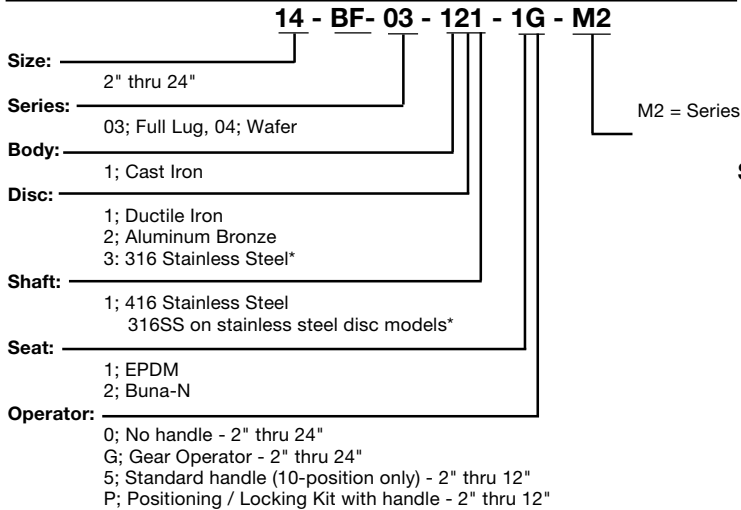
Size	A		B		C		D		E		F	G		H		I		J		
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
2"	10¾	273	6¾	161	1½	42	1¼	32	2½	54	3⅜	77	10½	267	½	13	3¾	95	¾	9
2½"	11½	295	6⅞	175	1¾	45	1¼	32	2⅝	65	3⅜	77	10½	267	½	13	4¼	108	¾	9
3"	12½	308	7⅞	181	1¾	45	1¼	32	3⅞	79	3⅜	77	10½	267	½	13	4¾	120	¾	9
4"	13¾	346	7⅞	200	2	52	1¼	32	4⅞	105	3⅞	92	10½	267	¾	16	6⅞	154	¾	10
5"	14¾	372	8⅞	213	2¼	54	1¼	32	4⅞	124	3⅞	92	10½	267	¾	19	7⅞	181	½	13
6"	15¾	397	8⅞	226	2⅝	55	1¼	32	6⅞	156	3⅞	92	10½	267	¾	19	8⅞	208	½	13
8"	18¾	479	10¼	260	2¾	60	1¾	45	8	200	4½	115	14	356	¾	22	10¼	260	¾	16
10"	21¼	540	11½	292	2¾	66	1¾	45	9⅞	251	4½	115	14	356	1½	29	12¾	320	¾	19
12"	24¾	626	13¼	337	3	76	1¾	45	11¾	301	5½	140	14	356	1½	32	14¾	375	1¼	32
14"	26¾	679	14½	368	3	76	1¾	45	13¾	333	5½	140	-	-	1¼	32	15⅞	405	1¼	32
16"	30	762	15¾	400	3¾	87	2	50	15¾	391	7¾	197	-	-	1¼	32	18½	470	1¼	32
18"	31¾	803	16¾	422	4⅞	106	2	50	17¾	442	7¾	197	-	-	1½	38	20⅞	525	1½	38
20"	35¾	905	18¾	480	5¼	133	2½	64	19¾	493	7¾	197	-	-	1½	41	22¼	565	1½	41
24"	43	1092	22¼	562	6	152	2¾	70	23¾	594	10¾	276	-	-	2	50	27⅞	693	2	50

Size	Top Plate Drilling				Tapped Lug Data				Key Way		Weight (lbs.)†	
	in.	mm	in.	mm	Bolt Circle	No. Holes	Bolt P	in.	mm	BF-03	BF-04	
2"	2¼	57	¼	6	4¾	121	4	5/8"-11UNC x 1¼"	-	-	8	6
2½"	2¼	57	¼	6	5½	140	4	5/8"-11UNC x 1¾"	-	-	10	7
3"	2¼	57	¼	6	6	150	4	5/8"-11UNC x 1¾"	-	-	10	7
4"	2¾	70	¾	10	7½	191	8	5/8"-11UNC x 1½"	-	-	17	12
5"	2¾	70	¾	10	8½	216	8	¾"-10UNC x 2"	-	-	25	16
6"	2¾	70	¾	10	9½	241	8	¾"-10UNC x 2"	-	-	27	20
8"	3½	89	¾	16	11¼	298	8	¾"-10UNC x 2½"	-	-	40	29
10"	3½	89	¾	16	14¼	362	12	7/8"-9UNC x 2¼"	-	-	63	48
12"	4¼	108	¾	16	17	432	12	7/8"-9UNC x 2¼"	¼ x 1	6 x 25	107	78
14"	4¼	108	¾	16	18¾	476	12	1"-8UNC x 2¼"	¼ x 1	6 x 25	156	99
16"	6¼	159	¾	22	21¼	540	16	1"-8UNC x 3¾"	5/16 x 1 13/16	8 x 46	203	140
18"	6¼	159	¾	22	22¾	578	16	1½"-7UNC x 4"	¾ x 1 19/16	10 x 40	269	188
20"	6¼	159	¾	22	25	635	20	1½"-7UNC x 5"	¾ x 1 19/16	10 x 40	392	248
24"	8½	216	¾	22	29½	750	20	1½"-7UNC x 5¾"	½ x 2 3/8	13 x 60	593	450

†Weights are for valves with ductile iron or aluminum bronze discs. 2" – 12" have levers; 14" – 24" have bare shafts. Refer to Watts F-CDBF for gear operator weights.

Size	SEATING TORQUE Buna-N, EPDM (in./lbs.)		Cv RATING (Full Open)	
	Normal	Conditions WET/DRY	Size	Cv Rating
2"	134/214		2"	135
2½"	190/289		2½"	220
3"	250/387		3"	302
4"	390/644		4"	600
5"	600/959		5"	1,022
6"	907/1,542		6"	1,579
8"	1,697/2,919		8"	3,136
10"	2,500/4,857		10"	5,340
12"	3,300/7,071		12"	8,250
14"	3,500/7,305		14"	11,917
16"	5,500/10,027		16"	16,388
18"	8,200/13,437		18"	21,705
20"	10,000/17,925		20"	27,908
24"	18,680/28,020		24"	43,116

How to Order Watts Series BF-M2



Materials

- Body** - ASTM A-126 Class B Cast Iron.
- Bushing** - Duralon(3); Teflon® - Dacron inner liner bonded to fiberglass - epoxy resin outer shell
- Stem O-rings** - Buna-N
- Disc** - ASTM A-395 Ductile Iron / Electroless Nickel Plated
ASTM A-148 Aluminum Bronze
ASTM A-351 316 Stainless Steel
- Shaft** - 416 Stainless Steel
316 Stainless Steel on 316SS Disc Models
- Seat** - EPDM: -15°F to +275°F (-26°C to +135°C)
Buna-N: -15°F to +180°F (-26°C to +82°C)

Note: Do not use EPDM when hydrocarbons are present.